CLAIMS

1. A method of operating a modem, the method comprising:

automatically sensing a number of observable parameters;

automatically selecting and setting, based on measurements during sensing, one of a number of sets, each set comprising a value of at least one controllable parameter, the value being obtained from at least one previous connection of the modem.

2. The method of Claim 1, the method further comprising:

measuring performance of the modem based on sensing; and

repeatedly adjusting the value of the at least one controllable parameter and repeating the act of measuring until a predetermined criteria of performance is met.

3. The method of Claim 2, the method further comprising:

identifying a difference between a reference, and a performance measurement obtained during said measuring performance; and

using the difference to guide the act of "adjusting the value."

4. The method of Claim 1, the method further comprising:

automatically storing in memory a set of values of controllable parameters and said measurements made during the act of "automatically sensing" and an association between said set and said measurements.

5. The method of Claim 4, wherein said measurements form a set in a plurality of sets of measurements currently stored in memory, the method further comprising:

automatically sensing said observable parameters again to obtain current measurements; and

if the current measurements are outside predetermined ranges of each set of measurements in the plurality of sets of measurements, automatically storing a new set of values of controllable parameters and said current measurements and an association therebetween.

6. The method of Claim 4, wherein said measurements are hereinafter "previous measurements", the method further comprising:

automatically sensing said observable parameters again to obtain current measurements; and

if the current measurements are within predetermined ranges of corresponding previous measurements, automatically using a set of values of controllable parameters previously saved in said memory.

7. The method of Claim 6, the method further comprising:

if the current measurements are within the predetermined ranges of corresponding previous measurements and if a new value for a controllable parameter is within a predetermined range of a corresponding value of said controllable parameter in the set currently stored in memory, automatically updating in memory said corresponding value with said new value.

8. The method of Claim 6, wherein a plurality of sets of values of controllable parameters are currently stored in memory and associated with the previous measurements, and said set is designated as a "current set", the method further comprising:

if the current measurements are within the predetermined ranges of corresponding previous measurements and if a new value for a controllable parameter is within a predetermined range of a corresponding value of said controllable parameter in a second set in said plurality of sets that is different from the current set, automatically updating in memory said corresponding value with said new value in said second set, and designating said second set as the "current set."

9. The method of Claim 6, wherein a plurality of sets of values of controllable parameters are currently stored in memory and associated with the previous measurements, and said set is designated as a "current set", the method further comprising:

if the current measurements are within the predetermined ranges of corresponding previous measurements and if a new value for a controllable parameter is outside a predetermined range of a corresponding value of said controllable parameter in all sets in the plurality of sets, automatically creating in memory an additional set including said new value, and designating said additional set as the "current set".

10. The method of Claim 1, the method further comprising:

automatically notifying the user of an environment of the modem represented by at least one of the measurements.

11. The method of Claim 1, the method further comprising:

automatically notifying the user of a characteristic of the modem represented by at least one of the measurements.

12. The method of Claim 1, the method further comprising:

automatically displaying an instruction to the user to improve performance of the modem.

13. The method of Claim 1, wherein the controllable parameter is an equalizer coefficient.

14. A modem comprising:

means for automatically sensing a number of observable parameters; and

means for automatically selecting and setting, based on measurements during sensing, one of a number of sets of values of controllable parameters, the values being obtained from at least one previous connection of the modem.

15. The modem of Claim 14 further comprising:

means for measuring performance of the modem based on sensing; and

means for repeatedly adjusting the values of controllable parameters and repeatedly measuring until a predetermined criteria of performance is met.

16. The modem of Claim 15 further comprising:

means for identifying a difference between a reference, and a performance measurement obtained from said means for measuring performance; and

means for using the difference to supply a control signal to the means for repeatedly adjusting the values of controllable parameters.

17. The modem of Claim 14 further comprising:

means for automatically storing in memory a set of values of controllable parameters and said measurements made by the means for automatically sensing and an association between said set and said measurements.

18. The modem of Claim 14, wherein said measurements form a set in a plurality of sets of measurements currently stored in memory, the modem further comprising:

means for automatically storing a new set of values of controllable parameters and a set of current measurements and an association therebetween, if the current measurements are outside predetermined ranges of each set of measurements in memory.

19. The modem of Claim 14, wherein said means for automatically sensing generates "previous measurements" in a previous connection, and also generates "current measurements" in a current connection, the modem further comprising:

means for automatically using a set of values of controllable parameters previously saved in said memory if the current measurements are within predetermined ranges of corresponding previous measurements.

20. The modem of Claim 18 further comprising:

means for automatically updating in memory a value of a controllable parameter with a new value if the current measurements are within the predetermined ranges of corresponding previous measurements and if said new value is within a predetermined range of said value of said controllable parameter currently stored in memory.

21. The modem of Claim 17, wherein a plurality of sets of values of controllable parameters are currently stored in memory and associated with the previous measurements, and said set is designated as a "current set", the modem further comprising:

means for automatically creating in memory an additional set including a new value for a controllable parameter, and means for designating said additional set as the "current set" if the current measurements are within the predetermined ranges of corresponding previous measurements and if said new value is outside a predetermined range of a corresponding value of said controllable parameter in all sets in the plurality of sets

22. The modem of Claim 14 further comprising:

means for automatically displaying an instruction to the user to improve performance of the modem.

23. The modem of Claim 14 further comprising:

non-volatile memory encoded with the sets of values of controllable parameters.

24. The modem of Claim 23 wherein:

the non-volatile memory is further encoded with a set of measurements associated with each set of values of controllable parameters.

25. The modem of Claim 23 wherein:

the non-volatile memory is further encoded with predetermined ranges of sets of measurements associated with each set of values of controllable parameters.